

What is claimed is:

1. A steering angle sensor, comprising:

5 a first gear rotating in synchronization with a steering shaft;

a second gear rotating in synchronization with the first gear at a rotation speed faster than a rotation speed of the first gear;

10 a small angle detection magnet provided on the second gear and rotating together with the second gear;

a small angle detection magnetic sensor disposed in a vicinity of where the second gear is fixed and configured to detect a magnetic line of force of the small angle detection magnet;

15 a third gear rotating at a rotation speed slower than the rotation speed of the second gear in synchronization with the first gear;

a large angle detection magnet provided on the third gear and rotating together with the third gear; and

20 a large angle detection magnetic sensor disposed in a vicinity of where the third gear is fixed and configured to detect a magnetic line of force of the large angle detection magnet,

25 wherein a rotation angle of the steering shaft is calculated based on angle data detected in the small angle detection magnetic sensor and the large angle detection

magnetic sensor.

2. The steering angle sensor according to claim 1,

wherein the small angle detection magnetic sensor
5 supplies a periodic signal of a triangular wave accompanied by
a rotational movement of the second gear, and

the large angle detection magnetic sensor supplies a
periodic signal of a triangular wave accompanied by a rotational
movement of the third gear, the periodic signal having a longer
10 period than a period of the periodic signal supplied by the small
angle detection magnetic sensor.

3. The steering angle sensor according to claim 1,

wherein detection data by the small angle detection
15 magnetic sensor and detection data by the large angle detection
magnetic sensor are set different in accordance with an absolute
angular position of the steering shaft.

4. The steering angle sensor according to claim 3,

20 wherein a signal, in which a gradient of a detection value
detected by the large angle detection magnetic sensor is made
to coincide with a gradient of a detection value detected by
the small angle detection magnetic sensor, is created as a
conversion signal, and

25 a difference between the conversion signal and a
detection result by the small angle detection magnetic sensor

is calculated, and it is determined as to which period in a periodic waveform supplied from the large angle detection magnetic sensor an absolute steering angle of the steering shaft belongs in accordance with a value of a remainder of when a value
5 of the difference is divided by a predetermined number of steps.